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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,587	02/06/2004	Masahiro Takahashi	0553-0397	6735

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EXAMINER	
ROY, SIKHA	

ART UNIT	PAPER NUMBER
2879	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/773,587	TAKAHASHI, MASAHIRO	
	Examiner	Art Unit	
	Sikha Roy	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5,8,9,14,15,19,20,23,24,27,28,30,33,34,36 and 39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,4,9,14,20,23,28,30,33,34,36 and 39* is/are allowed.

6)☒ Claim(s) *5,8,15,19,24 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Amendment, filed on November 7, 2007 has been entered and acknowledged by the Examiner.

Claims 1,4,5,8,9,14,15,19,20,23,24,27,28,30,33,34,36 and 39 are pending in the instant application.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 'substance of inert gas or resin filled in the gap between the transparent film and the second substrate' as claimed in claims 5, 15, 24 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 8, 15, 19, 24, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,894,431 to Yamazaki et al., U.S. Patent 5,003,221 to Shimizu and further in view of U.S. Patent Application Publication 20010016262 to Toyoshima et al.

Regarding claim 5 Yamazaki ('431)discloses (Fig. 7 column 10 lines 20-42) a first substrate 400 having insulating surface, a first electrode (cathode)701 formed over the substrate, a layer of an organic compound formed over the first electrode, a second electrode (transparent anode)702 formed over the organic compound layer, a second substrate 704 formed over the second transparent electrode and resin 706 is filled in the gap between the second transparent electrode and the second substrate. Yamazaki

discloses the configuration is reversed in a way such that light is emitted in a direction towards the upper electrode (direction indicated by an arrow).

Yamazaki ('431) is silent about a transparent film comprising silicon oxynitride over the second electrode and the refractive index of the transparent film gradually decreasing from the first interface at a side of the second electrode to a second interface at a side of resin.

Shimizu in relevant art of EL displays discloses (column 3 lines 11-28,) a thin film layer formed between two adjacent layers, the refractive index of the thin film layer is changed to be approximated to those layers toward the interfaces so that a difference in refractive index at the layer interface is minimized. Thus an EL element can minimize reflection at interfaces between the respective layers and can efficiently emit light with high luminance.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a transparent film formed over the transparent second electrode (refractive index 1.9) and between the second electrode and the resin (refractive index about 1.49) filling the gap of display of Yamazaki('431), the refractive index of the transparent film decreasing from (1.9 to 1.5) the first interface (at the side of the second electrode) to the second interface (at the side of resin) as taught by Shimizu for minimizing reflection at interfaces between the layers and efficiently light emission with high luminance.

Yamazaki('431) and Shimizu do not exemplify the transparent film comprising silicon oxynitride.

Toyoshima in pertinent art discloses (para [0009],[0013]) a film formed with silicon as target and oxygen and nitrogen used as reactive sputtering gas components so that silicon oxynitride film is formed having refractive index distributed broadly from 1.48 (refractive index of SiO_2) to 2.1 (refractive index of Si_3N_4). Toyoshima further teaches that this coating with changing amount of nitrogen and oxygen is transparent and shows no substantial absorption of visible light.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use transparent silicon oxynitride as the transparent film of Yamazaki ('431)and Shimizu as taught by Toyoshima since it has been held to be within the general skill of the worker in the art to select a known material based on its suitability for the intended use (MPEP 2144.07).

Regarding claim 8 Yamazaki('431) discloses (Figs. 8, 9 column 11 lines 42-65) the light emitting device is incorporated in video camera, playback DVD, mobile computers.

Regarding claim 15 Yamazaki('431), Shimizu and Toyoshima disclose all the limitations same as of claim 5 and additionally Toyoshima discloses (para [0009], [0012], [0013]) the transparent film comprising silicon, oxygen and nitrogen in which the composition ratio of oxygen increases (refractive index of SiO_2 1.48) so that the refractive index decreases toward the second interface and approximates to that of

resin and the composition ratio of nitrogen decreases (refractive index of Si_3N_4 2.1)from the first interface at a side of the second electrode.

Regarding claim 19 Yamazaki('431) discloses (Figs. 8, 9 column 11 lines 42-65) the light emitting device is incorporated in video camera, playback DVD, mobile computers.

Claims 24, and 27 recite the limitations for the method of making the light emitting device which are essentially same as those of claims 5, and 8 and hence are rejected for the same reasons.

Allowable Subject Matter

Claims 1,4,9,14,20,23,28,30,33,34,36 and 39 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Regarding claims 1 and 9, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 1 and 9, and specifically comprising the limitation of first transparent film comprising silicon oxide, second transparent film comprising silicon oxynitride over the first transparent film and third transparent film comprising silicon nitride over the second transparent film.

Claims 4 and 14 are allowable for the reasons given in claims 1 and 9 because of their dependency status from claims 1 and 9 respectively.

Regarding claim 20 the prior art of record fails to teach or suggest the method of manufacturing a light emitting device having the combination of the limitations as set forth in claim 20, and specifically comprising the limitation of forming a first transparent film comprising silicon oxide, forming a second transparent film comprising silicon oxynitride over the first transparent film and forming a third transparent film comprising silicon nitride over the second transparent film.

Claim 23 is allowable for the reason given in claim 20 because of its dependency status from claim 20.

Regarding claim 28 the prior art of record fails to teach or suggest the method of manufacturing a light emitting device having the combination of the limitations as set forth in claim 28, and specifically comprising the limitation of forming the transparent film of silicon oxynitride by sputtering using a silicon oxide target and a silicon nitride target.

Claims 30 and 33 are allowed because of their dependency status from claim 28.

Regarding claim 34 the prior art of record fails to teach or suggest the method of manufacturing a light emitting device having the combination of the limitations as set forth in claim 28, and specifically comprising the limitation of forming the transparent film of silicon oxynitride by sputtering using a silicon oxide target and a silicon nitride target.

Claims 36 and 39 are allowed because of their dependency status from claim 34.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 5,869,929 to Eida discloses the refractive index of resin.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sikha Roy/
Primary Examiner, Art Unit 2879